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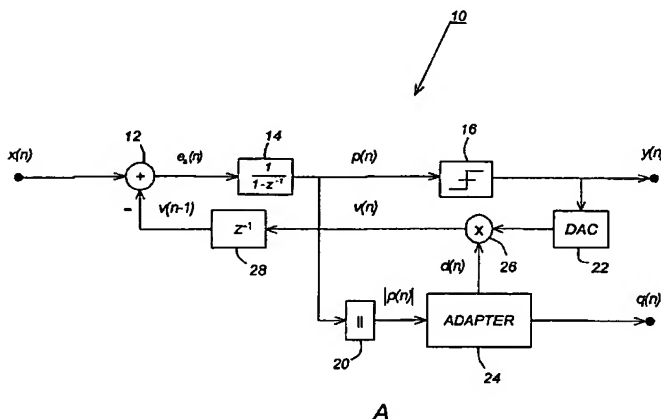
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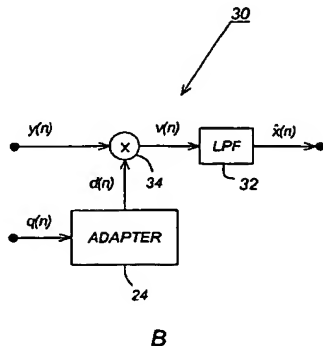
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| <p><b>(51) International Patent Classification<sup>7</sup>:</b> <b>H03M 03/00</b>,<br/>07/30, 07/34, H04B 14/06</p> <p><b>(21) International Application Number:</b><br/>PCT/US2003/032835</p> <p><b>(22) International Filing Date:</b> 15 October 2003 (15.10.2003)</p> <p><b>(25) Filing Language:</b> English</p> <p><b>(26) Publication Language:</b> English</p> <p><b>(30) Priority Data:</b><br/>60/418,644                      15 October 2002 (15.10.2002)      US</p> <p><b>(63) Related by continuation (CON) or continuation-in-part (CIP) to earlier applications:</b><br/>US                                      10/256,606 (CIP)<br/>Filed on                                27 September 2002 (27.09.2002)<br/>US                                      10/332,750 (CIP)<br/>Filed on                                13 January 2003 (13.01.2003)</p> | <p><b>(71) Applicant (for all designated States except US):</b> <b>THE REGENTS OF THE UNIVERSITY OF CALIFORNIA</b> [US/US]; 1111 Franklin Street, 12th floor, Oakland, CA 94607 (US).</p> <p><b>(72) Inventors; and</b></p> <p><b>(75) Inventors/Applicants (for US only):</b> <b>ALDAJANI, Mansour, A.</b> [SA/SA]; P.O. Box 1237, King Fahd University, Dhahran 31261 (SA). <b>SAYED, Ali, H.</b> [BR/US]; Professor &amp; Vice Chairman, Electrical Engineering Department, University of California, Los Angeles, CA 90095 (US).</p> <p><b>(74) Agent:</b> <b>GATES, George, H.</b>; Gates &amp; Cooper LLP, 6701 Center Drive West, Suite 1050, Los Angeles, CA 90045 (US).</p> <p><b>(81) Designated States (national):</b> AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK,</p> |
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**(54) Title:** ADAPTIVE MULTI-BIT DELTA AND SIGMA-DELTA MODULATION



**(57) Abstract:** An adaptive multi-bit delta and sigma-delta modulation (10) and demodulation technique, wherein a one-bit modulator generates a binary output signal from an analog input signal and a multi-bit adapter (24) for generating a scaling signal for scaling a step-size of the sigma-delta modulator.





MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

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# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/32835

<b>A. CLASSIFICATION OF SUBJECT MATTER</b> IPC(7) : H03M 03/00, 07/30, 07/34; H04B 14/06 US CL : 341/51, 76, 143; 375/244, 247 According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b> Minimum documentation searched (classification system followed by classification symbols) U.S. : 341/51, 76, 143; 375/242-254 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched NONE Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) NONE		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6,339,621 B1 (COJOCARU ET AL) 15 JANUARY 2002 (15/01/02), SEE THE ABSTRACT.	1-14
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.		
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"O"	document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P"	document published prior to the international filing date but later than the priority date claimed	
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Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230		Authorized officer David Mis Telephone No. (571)272-1650